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Japanese Published Unexamined Patent Application (A) No. 54-012579, published January 30, 1979; Application Filing No. 52-76553, filed June 29, 1977; Inventor(s): Kooichi Asaya; Assignee: Nippon Telegraph and Telephone Public Corporation; Japanese Title: Light Output Stabilizing Method

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LIGHT OUTPUT STABILIZING METHOD

CLAIM(S)

A light output stabilizing method in an optical transmission system for analog base band images, which transmits an image signal by directly modulating the driving current of a luminous element by the analog electrical signal, characterized in that said image signal is negatively modulated to detect the peak value of the sync signal composition of the modulated signal and said detected value is fed back to the driving circuit that outputs said driving current to stabilize the light output of the luminous element.

DETAILED DESCRIPTION OF THE INVENTION

The present invention pertains to a light output stabilizing method for a luminous element in an analog image signal-optical transmission system, wherein luminous elements, such as a light-emitting diode and a

semiconductor laser, are directly driven by analog image signals which are modulated.

As the prior art light output stabilization method in an analog signal-optical transmission system, the peak value is detected and feedback is done by using pulse position modulation (PPM – IM), pulse interval modulation (PIM- IM), pulse width modulation (PWM – IM), and frequency modulation. However, in the analog base band image transmission system, in which the terminal device and relay device are most economical and simple, an average picture level (APL) is not constant; if the prior art positive modulation method is used, the peak value cannot be detected. Moreover, if a constant average level is used by an alternating-current coupling, detection of an average level may be done but reliability and useful life will be undermined since load is constantly exerted on the luminous element regardless of the presence/absence of signals.

The present invention, to solve the aforementioned problems, attempts to present a light output stabilizing method, wherein the luminous element is directly driven and the optical signal generated is modulated by a negative modulation image signal whose modulation signal amplitude is decreased when the luminance is increased, and the light signal peak is detected to be

fed back to the driving circuit of said luminous element, to stabilize the light output.

Fig. 1 shows a schematic diagram of one embodiment example of the present invention. In the figure, 1 indicates the signal input terminal, 2 the luminous element-driving circuit for conducting the negative modulation, 3 the luminous element, 4 the light output-monitoring detector, 5 the peak-detection circuit, 6 the automatic gain-controlling feedback circuit, and 7 the light path.

Fig. 2 and Fig. 3 show the light output waveforms when the positive modulation and negative modulation are done, respectively. As is evident from Fig. 2, the peak value is changed by the image at a time of positive modulation, so the peak value cannot be detected. If the negative modulation is used, as shown in Fig. 3, the sync signal composition will constantly have the peak value. Therefore, if the peak value of the sync signal of light signal is detected and fed back to the driving circuit of the luminous element so that the peak value will be constant to control the gain of the driving circuit, the light output stabilization can be effectively performed.

As explained above, when the light output from a light-emitting diode or semiconductor laser is directly modulated by the analog image signal in the light output stabilizing method of the present invention, the light output is

stabilized by detecting the peak value of the sync signal composition which uses the constant value by using the negative modulation, so the light output can be easily stabilized at a time of transmitting an mage signal whose average signal level is not constant as in the case of transmitting a voice signal. Also, as is disclosed in Japanese Patent Application 51-121408 by the inventor of the present invention, the load can be reduced by using the negative modulation, and the reliability can be improved.

The present invention is particularly effective for stabilizing the light output at a time of transmitting the analog optical signal of an image.

BRIEF DESCRIPTION OF THE DRAWINGS

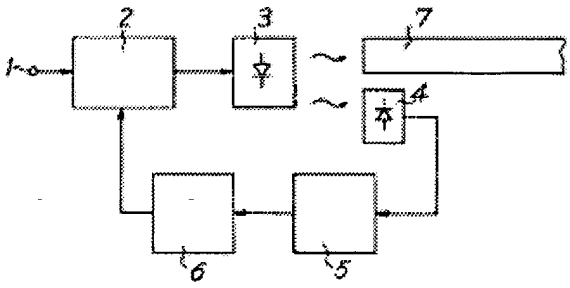
Fig. 1 shows one example of the embodiment of the present invention. Fig. 2 shows the black and white image signals at a time of positive modulation. Fig. 3 shows the black and white image signals at a time of negative modulation.

1. signal input terminal
2. luminous element-driving circuit
3. luminous element
4. light output-monitoring detector
5. peak- detection circuit

6. gain controlling feedback circuit

7. light path

第１図



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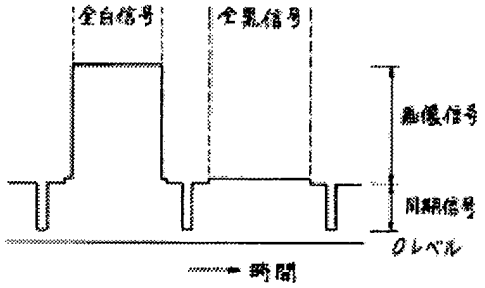

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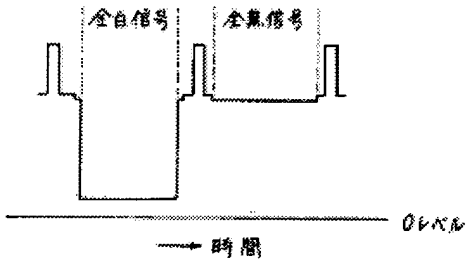

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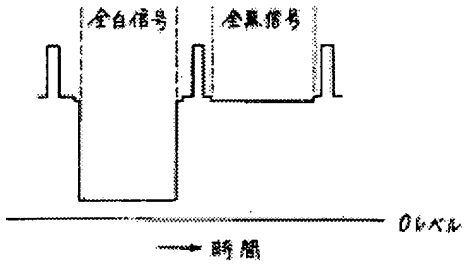

Translations
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